The North Atlantic Regional Medical Command's Telemedicine Health Portal

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Telemedicine Directorate

North Atlantic Regional Medical Command

NARMC Posture

- Operating Multitude of Stovepipe Web Applications
  - Dermatology
  - Behavioral Health
  - Shoe Clinic
  - Sleep Evaluation
  - Neuropsychology
  - Neurology (Brain Injury)
  - Orthopedics
  - Hepatitis C

Project Goals

- Develop Standardized “Reusable” Scalable Web-Based Application Modules
- Minimize Application Development Time & Costs
- Standardize Coding Format
- Increases Code Maintainability
- Standardize Documentation for and within Applications
- Increase New Application Development

User Community

- Patients
- General Healthcare Providers
- Specialist / Consultants
- Administrators
  - Site Administrator
  - Application Administrator
  - Senior System Administrator
- Administration (Report Access)
- Guests

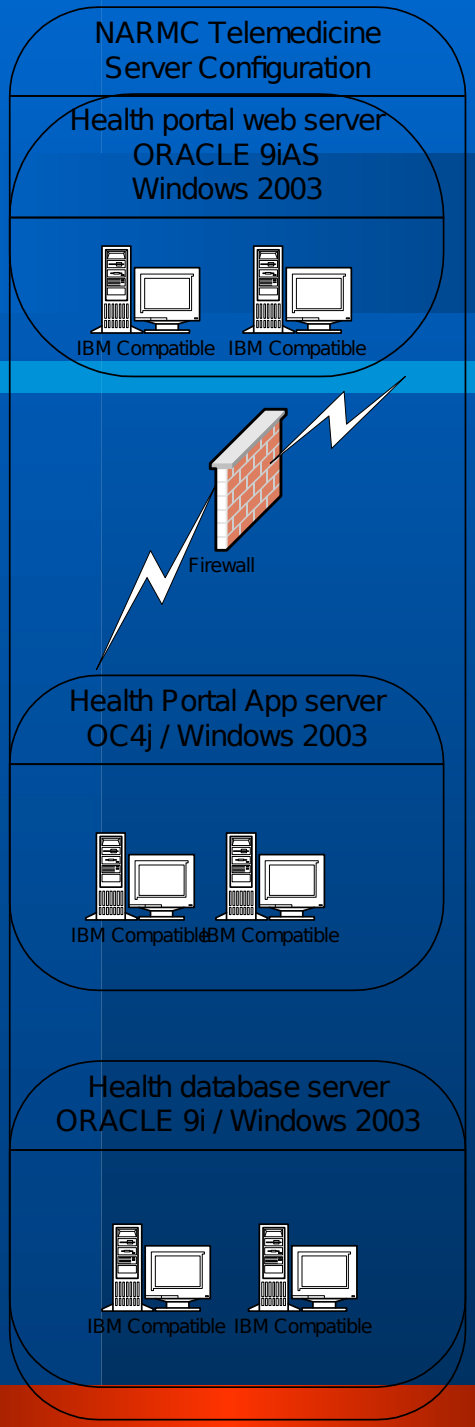
Our Approach

- Create a Master Oracle Database with multiple tables for all Applications
- Develop Common Application Modules
- Develop various standard Utility Modules
- Develop a standard development library with small reusable functional procedures

Hardware Architecture

- Compaq DL 380 Servers (6)
  - 1 GB Memory, 100 GB Disk Storage
- Server Configuration
  - Web Server (Replicated)
  - Application Server (Replicated) (Behind Firewall)
  - Database Server (Replicated) (Behind Firewall)
- Rack Mounted & UPS Backup

NARMC Server Configuration



- **Compaq DL 380 Servers**
- **1 GM Memory each**
- **100 GB Hard Drive each**
- **Each Functional Server is Replicated**

Software Architecture Overview

- Java Server Page (JSP compiled language)
- Oracle Database (9i)
- Digital Certificate Active (128-bit Encryption)
- Coding Standards
- Software Control
- Formal Testing Plan

Code Documentation Standards

- **Program Initial Comment Block**
  - <%-- ----------
  - PROGRAM NAME: template.jsp
  - AUTHOR: Brian Quinn
  - DATE CREATED: 01 Jun 03
  - MODULE: Core
  - VERSION: 1.0
  - COMMENTS:
  - This page is the standard web page "wrapper" which should be included
  - in every webpage within the THP framework.
  - ----------
  - REVISION 1.1: 12 Jun 03 Brian Quinn
  - Added new standard comments block
  - ---------- --%>
- **Each Section Commented On**
- **Difficult or Complex Sections Include Programmers Comments**
- **Code is Reviewed During Test/Validation Acceptance**

Software Control / Library Structure

- Each Developer has their own development application directory
- Test Library (Alpha Testing)
- Validation Library (Beta Testing)
- Operation Library

-- Only DBA can promote code to this library

Formal Testing Plan

- **Documentation Review**
- **User Review**
- **Code Review**
- **Code Test**
- **Functional Test**
- **Integration Test**

ER Diagram goes here

Applications in Development

- Common Application Modules (15)
- Common Utility Modules (5)
- Generic
- Pathology
- Plastic Surgery
- Neurosurgery
- Tumor Board

Next Migration Effort

- Build in a stand alone Application Interface for existing applications
- Patient Sleep Evaluation (existing)
- Brain Injury (existing)
- Running Gate Analysis (existing)
- Future R & D Funded Projects (new)

The Common Modules

Security / HIPAA (Common Core)

- User Registration
- Password Management
- User Access Rules (per application)
- Activity Log
- Patient Record Access Log

Password Management (Common Core)

- IAW AR 25-2 (2003)
- Initial One-Time Use
- 10 Character Password
  - 2 Upper, 2 Lower, 2 Numbers & 2 Special Character
- Forgotten Password Support
- Password Expiration w/ Notification
- Non-Reusable password for 10 cycles

Patient Data Sources (Common Core)

- Demographics (DoD DEERS database)
- Medications (local clinical database)
- Lab Results (local clinical database)
- Allergies (local clinical database)

File Upload Support (Common Core)

- 5 Images at a time can be uploaded
- Repetitive Uploads (group of 5)
- File Types Supported
  - .JPG
  - .GIF
  - .MPG
  - .Doc
  - .PDF
- Ensure no Executable Files are uploaded

Standard Reports (Common Core)

- Auto Generated Standard Consult Form (SF 513)
- Auto Generated Standard Patient Encounter Form (SF 600)
- Access to Radiology Reports
- Consult Activity Summary Report

513-110 NSN 7540-00-634-4127

MEDICAL RECORD — CONSULTATION SHEET

REQUEST: Orthopedics

TO:	FROM: (Requesting physician or activity)	DATE OF REQUEST
Orthopedics	Mr. TeleHealth Portal, WRAMC	2003-12-04

REASON FOR REQUEST (Complaints and findings) TELEMEDICINE CONSULT

Pt is a 24 yo AD male with h/o jamming injury to right long finger two weeks ago while playing volleyball for PT. Pt c/o pain, swelling and limited motion of finger. On PE, LF swollen, tender volarly at the PIPJ,and has lack of full extension. Xrays neg for fx. Request opinion re dx and treatment.

PROVISIONAL DIAGNOSIS

DOCTOR'S SIGNATURE	APPROVED	PLACE OF CONSULTATION	
		☐ BEDSIDE ☐ ON CALL	☑ ROUTINE ☐ TODAY ☐ 72 HOURS ☐ EMERGENCY

CONSULTATION REPORT

RECORD REVIEWED ☐ YES ☐ NO PATIENT EXAMINED ☐ YES ☐ NO

Diagnosis 1: (Mr.. Portal ,TeleHealth WRAMC 2003-12-04 14:31:33.0)

Based on the mechanism and PE described, this pt most likely has a volar plate avulsion of the PIPJ. Early treatment with a volar splint, positioning the PIPJ in extension is recommended (or progressing to extension if needed). Avoid prolonged splinting in flexion as this will result in a persisting PIPJ contracture. When sx improve (usu within 10dys) remove splint and initiate ROM exercises.

SIGNATURE AND TITLE	DATE

IDENTIFICATION NO.	ORGANIZATION	REGISTER NO.	WARD NO.

PATIENT IDENTIFICATION *(For typed or written entries give: Name - last, first, middle; grade; rank; rate; hospital or medical facility)*

20/123456789: Test, Ima ,R ,Camp Swampy

CONSULTATION SHEET
Medical Record

STANDARD FORM 513 (REV. 8-92)
Prescribed by GSA/ICMR, FIRMR (41 CFR) 201-9.202-1

*U.S. GPO: 1993-346-813

Documentation (Common Core)

- System Overview
- Patient Telemedicine Information Sheet
- Patient Telemedicine Consent Form

System Utility Support (Common Core)

- Feedback Support
- Administrator Support
  - Account Authorization and Maintenance
  - Log Access (Activity Log & Patient Access Record Log)
  - Multi-Application Role Authorization
- User Profile Access

System Utility Support (Common Core)

- **Auto eMail Notification**
  - New User Registered
  - New Consult Arrived
  - Contact Administrator
  - Contact Developers
  - Forgotten Password
- **Auto Consult Status Tracking (Date & Time)**
  - Created, Not Approved
  - New
  - Pending Amendments / Images
  - Sent to Consultant
  - Sent to Provider
  - Completed

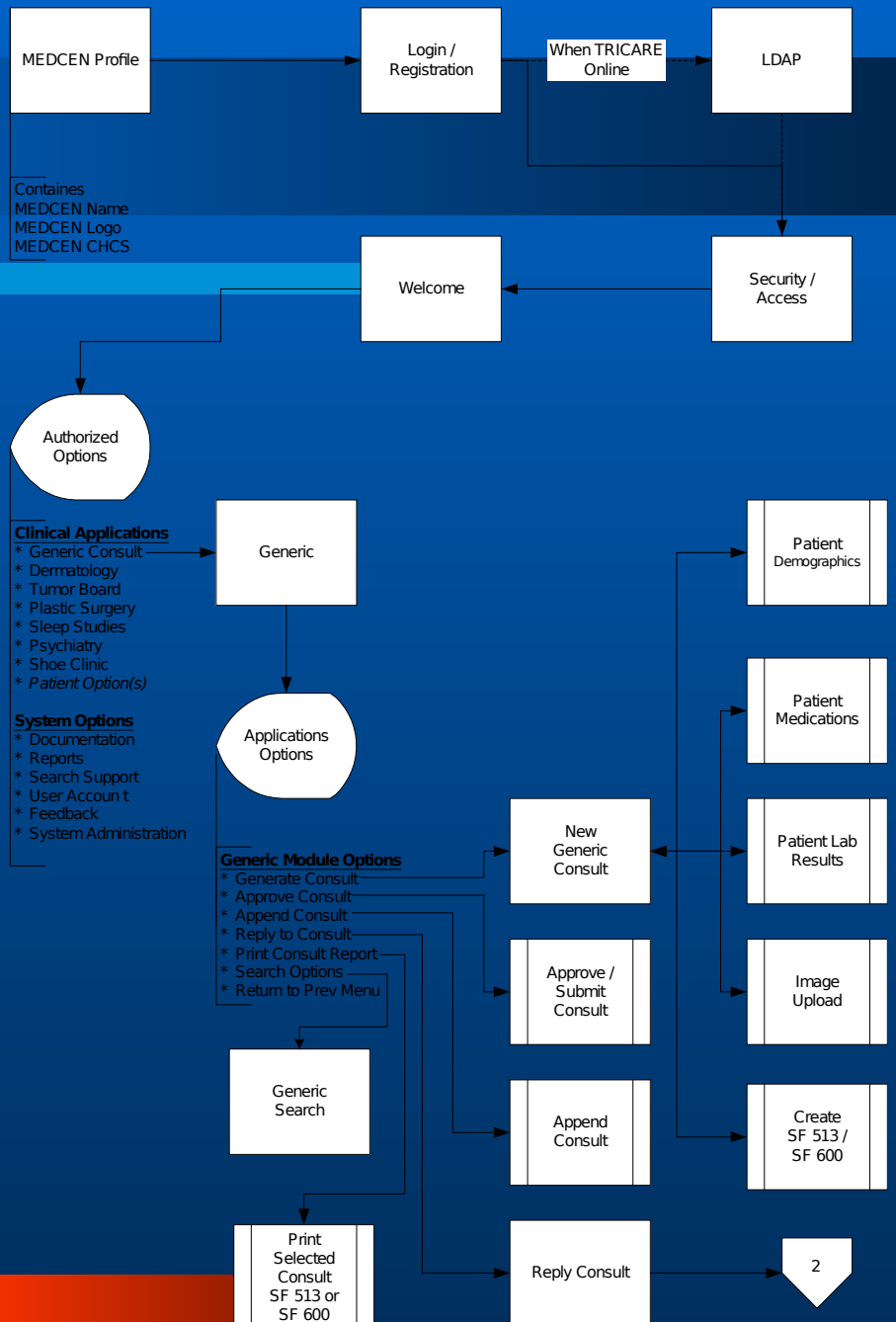
Special Common Core Features

- Warning and Lockout if
  "Record Already in Use"
- Develop a "User Specific" 1st Page for:
  - Patient
  - Healthcare Provider
  - Healthcare Specialist / Consultant
  - Site System Administrator
  - Application Administrator
  - Senior System Administrator

Auto-Validation Processes (Common Core)

- Patient eligibility through DEERS database
- Healthcare Provider status through facility Integrated Clinical Database
- Specialist / Consultant status through AMEDD license tracking database (CCQAS)

Telemedicine Health Potal
Generic Application Module Flow Diagram



- **Matt,**

  Once the THP screens are more finalized, we can capture and place several screen shots either at the bottom of the poster (like derm did long ago) or have a separate section of screen shots. I will leave the design to the master -> You! Change as you see fit.

Thanks much!

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Tom

(I will be on leave 15 – 22 March and 25 March)